MISSOURI WATERFOWL STATUS, 2003

Wetland habitat conditions and waterfowl populations have gone from record low to record high levels during the last decade. Hunting opportunity and harvest also "raised the bar" of hunter expectations. Following is a summary of last year's waterfowl season and the outlook for 2003. The report is divided into 6 primary sections:

1) a review of the 2002-03 hunting season,
2) the status of duck habitat and populations in 2003,
3) the status of goose populations and production,
4) issues affecting hunting regulations in 2003,
5) factors considered when recommending hunting seasons for Missouri,
6) the outlook for the 2003 season.

A more complete summary of waterfowl status is available at:
http://migratorybirds.fws.gov/reports/reports.html

The Missouri waterfowl status report is available on the Missouri Department of Conservation web site at:
http://www.conservation.state.mo.us/hunt/wtrfowl

Throughout the fall / winter this web site provides up-to-date migration and hunting status in Missouri and other waterfowl hunting formation.

We thank the U.S. Fish and Wildlife Service, the Canadian Wildlife Service, other State and Provincial conservation agencies, Missouri Department of Conservation wetland area managers, and Missouri hunters for information used in this report.

2002-03 HUNTING SEASON IN REVIEW

Waterfowl hunting opportunity in Missouri began with the September teal season and continued through January. Missouri duck seasons were 60 days in length for the 6th consecutive year in each of the three zones. As in recent years, and in response to hunters' preferences for later seasons, the 2001-02 and 2002-03 season structures were the latest since the 1958 statewide season of 70-days (24 October to 1 January). The South Zone closure of 21 January (14 January in 2000-01 and 20 January 2001-02) was the latest among modern duck seasons.

Canada goose hunters had an additional 7 days of hunting opportunity due to an extension of the framework from 70 to 77 days. The change was designed to allow early season harvest of resident Canada geese without putting additional pressure on interior populations of Canada

geese. As in years past, the Canada goose season structure allowed only 30 days after 30 November in the North, Middle, and Swan Lake Zones. In 2001, we eliminated the early October Canada goose split in South Missouri because of hunter interest in later seasons concurrent with duck seasons. In response to hunter comments, we reinstated an early October Canada goose split in South Missouri. This year we have heard from hunters wanting additional late season hunting opportunity in the South and Southeast Zones. Apparent hunter preference based on those who express displeasure with season structure may not reflect the majority view of those who favor specific season dates. We will continue to conduct post-season harvest surveys to evaluate hunter season date preferences. The challenge will be to continue to monitor hunters' preferences for seasons and amend seasons based on population status and hunter attitudes.

Table 1. 2002-03 Waterfowl Seasons.

Zone	Youth Hunt	Ducks	Pintails	Canada Geese and Brant	White-fronted Geese	Snow/ Blue/ Ross's Geese
NORTH	10/19-10/20	10/26-12/24	10/26-11/24	9/21-10/6 10/26-11/24 12/21-1/18	10/26-1/18	10/26-1/18
MIDDLE	10/26-10/27	11/2-12/31	11/2-12/1	9/21-10/6 11/2-12/1 12/21-1/18	11/2-1/26	11/2-1/26
SOUTH	11/16-11/17	11/23-1/21	11/23-12/22	9/28-10/6 11/23-1/26	11/2-1/26	11/2-1/26
SWAN LAKE	SAME AS NORTH	SAME AS NORTH	SAME AS NORTH	10/26-12/1 12/21-1/18	SAME AS NORTH	SAME AS NORTH
SOUTH-EAST	SAME AS MIDDLE	SAME AS MIDDLE	SAME AS MIDDLE	SAME AS SOUTH	SAME AS SOUTH	SAME AS SOUTH
The season for canvasbacks is closed						
The hunting season for blue, snow and Ross's geese closes in the North and Swan Lake zones on 18 January 2003 and in the South, Middle, and Southeast zones on 26 January 2003. Conservation order dates are 19 January-30 April 2003 in the North and Swan Lake zones and 27 January-30 April 2003 in the South, Middle, and Southeast zones.						

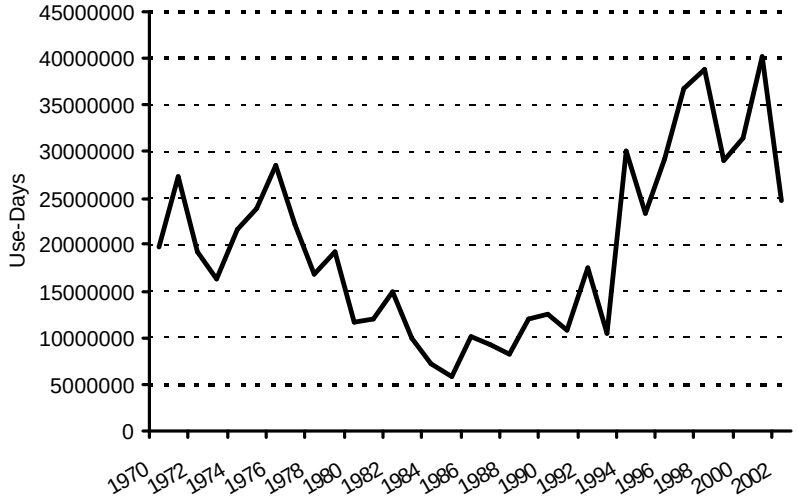
Weather, Habitat and Migrations:

Fall 2002 was characterized by extremely dry conditions, a variable temperature pattern with relatively mild weather punctuated by several cold periods, minor migration events, and generally mediocre hunting opportunity and harvest away from managed public and private wetlands. The limited but concentrated habitat conditions affected the distribution of ducks and hunting opportunity. Reservoir levels were below normal, crop harvest was earlier than average, and lack of fall rain resulted in essentially no sheet water in the northern 2/3 of Missouri.

We entered the fall extremely dry. Up to 8" of rain during late September provided some improvement in the Bootheel. Sporadic rain and snow events later in the fall did not provide enough moisture to improve habitat conditions. The period of June through December 2002 was the 12th driest on record and the period of November through January, the 11the driest on record. Much of West Missouri, especially Northwest Missouri, faced drought conditions. Missouri was

generally unattractive for migrant ducks in 2002. In contrast to the statewide picture, conditions on many managed areas generally were favorable. Despite early season concerns about availability of water for pumping, most wetland areas had adequate water available for managed flooding. Natural food and crop conditions were fair to good on most wetland areas.

Figure 1. Duck Use-days on State and Federal Wetland Areas in Missouri, 1970-2002.



Initial influx of blue-winged teal in August and additional flights on both weekends of the September teal season were consistent with long-term average migration timing. The first primary arrivals of early migrant dabblers including gadwalls, pintails, wigeon, and green-winged teal occurred during 4-6 October. Early October numbers (53,566) were substantially lower than the same period in 2001 (92,000). Migrations on 10/12-13, 10/15-16, and 10/18-20 resulted in the departure of the remaining blue-winged teal and some early season dabblers and the first influx of mallards, but overall numbers remained substantially lower than in 2001 (129,501 vs. 202,000). The most dramatic migration event of the season occurred on 30-31 October. October 2002 was the 10th coolest on record.

Duck numbers increased to 352,688 (vs. 341,239 in 2001) by the first week of November. Total duck numbers among surveyed areas in mid-November (370,000) were similar to 2001 (320,000), however, for somewhat different reasons. In 2001, extremely mild weather limited southern migration until late November. This year, in contrast, lack of suitable habitat caused ducks to quickly move through Missouri. Four small migration events in November resulted in the departure of most duck species and the arrival of only limited numbers of mallards.

By early December, duck numbers were again well below last year's numbers (395,987 in 2002 vs. 731,483 in 2001). Conditions were highly variable in December as Missouri experienced both record highs in the 60's and record lows below 0. Three storm systems (12/3, 12/13, 12/23-24) moved through the state in December. With the passage of each system, southern Missouri was left with snow, and most of the state with ice-covered shallow water habitat. Temperatures quickly moderated after each storm and shallow water habitats thawed. Duck numbers generally declined on the managed areas during periods of cold and rebounded somewhat with the return of warmer temperatures after the passage of each system. The Bootheel received 4-6" of rain on 31 December. Although habitat conditions improved, it did not result in increased duck use. The Midwinter Waterfowl Survey during 6-8 January reflected duck numbers (300,041) substantially lower than last year (589,454), but within the range of the last 20 years (85,700-714,000).

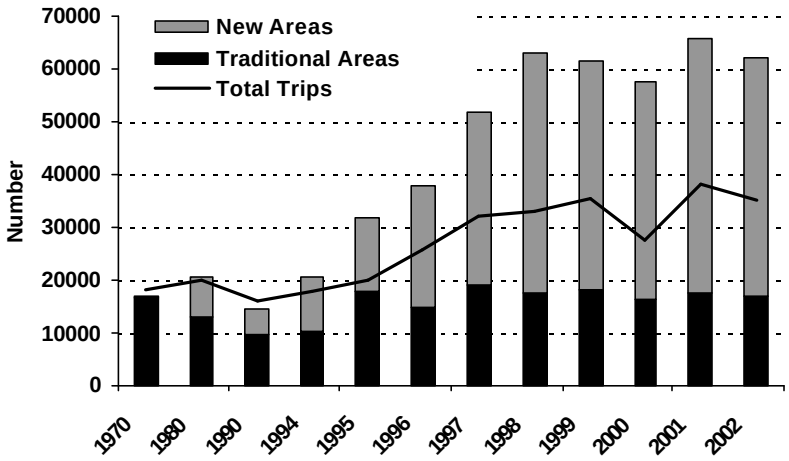
Dry conditions, poor habitat, and several periods of cold temperatures in Missouri combined with little to no snow fall in the states to the north and relatively good habitat conditions in the states to the south resulted in widespread distribution of ducks throughout the flyway and little build up of waterfowl numbers in Missouri. Northern states retained some ducks throughout the fall and early winter and many ducks quickly passed through Missouri. Other than the migration event on 30-31 October, the fall was characterized by a very gradual influx of ducks offset by an equally gradual departure of ducks.

Canada goose numbers continued the decline typical of the last decade. Only 2,150 Canada geese were surveyed at Swan Lake National Wildlife Refuge (NWR) during late October. Numbers decreased to <1,000 until December when they rose to 1,300 in early December, and to a peak of 4,400 in late December. These numbers were even lower than last year when 3,000-4,000 Canada geese were observed in late October and 8,000 in early January. We observed a similar trend statewide. Very few geese were associated with traditional managed areas such as Swan Lake NWR, Fountain Grove Conservation Area (CA), Schell-Osage CA, or Montrose CA. The tally of 132,306 Canada geese in the 2002-03 Midwinter Survey was nearly 50% lower than in 2001-02 (261,506).

Light geese arrived in small numbers in mid-October and the first significant migration event occurred in association with the cold front on 30-31 October. By early November 75,000 light geese were observed with the largest concentration at Swan Lake (55,000). Numbers steadily grew to a peak of 569,846 in the Midwinter Survey in early January. This number was down considerably from the 892,182 observed in 2001-02 , but it was still the 2nd highest recorded on Midwinter Surveys. Primary migration periods were during 30-31 October, 1-4, 9 November and 6-8 December. However, with dry conditions, many light geese did not stop in Missouri. Most notably, Squaw Creek NWR reported virtually no snow geese during the 2002-03 season due to dry conditions. Similar to snow geese, white-fronted goose numbers were much lower than last year. The 2002-03 Midwinter Survey yielded 5,585 white-fronted geese compared to 12,016 in 2001-02.

Duck and Goose Harvest:

Figure 2. Numbers of Ducks Harvested on Missouri Department of Conservation Areas.



Traditional Areas = Fountain Grove, Montrose, Duck Creek and Schell-Osage CAS

With a lack of significant migration events and a corresponding build up of duck numbers, hunter interest in later duck seasons was common – similar to the 1997-1999 hunting seasons. Yet, the 60-day season, which spanned 88 days from the 26 October opening in the North Zone to the January 21 closure in the South, included all major duck flights and the range of fall and winter weather conditions. In seasons like 2002, ducks, hunting opportunity, and harvest largely are limited to traditional managed areas on public and private lands. With the exception of Southeast Missouri, where heavy rainfall provided later season duck and hunting habitat, river and reservoir levels remained below normal.

Estimates of duck harvest are based on two sources, a U.S. Fish and Wildlife Service (USFWS) survey and the Missouri Department of Conservation Waterfowl Post-season Harvest Survey. Typically, USFWS estimates and MDCs post-season harvest estimates are similar (see Appendix A) and we only report the USFWS estimates. This year the U.S. Fish and Wildlife Service implemented a new survey methodology and their preliminary estimates diverged greatly from our post-season survey estimates, so we report both estimates where possible.

Numbers of hunters participating in the 2002-03 season (34,822 vs. 38,002 in 2000-01), trips per hunter (7.2 vs. 8.9 days in 2001-02), and average daily success (1.67 vs. 1.95 in 2001-02) combined to result in a 2002-03 duck harvest of 392,621 (229,700 preliminary USFWS estimate) down from a near record harvest of 445,923 in 2001-02. A harvest of 62,015 was taken on Department areas in 35,175 trips, lower only than 2001-02 (65,700 ducks in 38,134 trips) and 1998-99 (63,200 ducks in 32,945 trips). The Department areas maintained a 1.76 duck average (versus 1.72 in 2001, 2.09 in 2000, 1.73 in 1999, and 1.92 in 1998). Few hunting days were limited by weather, and opportunity to hunt much of the 60-day season resulted in relatively high harvest. During 1988-97, an average of 14.4% (range=12.4%-16.5%) of the Missouri duck harvest (USFWS survey) occurred on Department areas (based on area-reported harvest). This relationship did not hold true for 1999-00 (a dry season similar to 2002) when 19.1% of a statewide total of 322,600 ducks were harvested on Department areas (versus 13.9% of 458,400 in the wet fall of 1998-99). Harvest in 2002-03, however, was consistent with the long-term trend as 15.8% of Missouri's duck harvest occurred on Department areas.

Table 2. Missouri duck harvest among current (1996-2001) duck season zones (USFWS Harvest Survey Data).

Year	North Zone *	Middle Zone	South Zone	Statewide
1981-84	122,200** (52.5%)	96,500 (41.5%)	13,900 (6.0%)	232,600
1985-87	86,200 (49.3%)	82,400 (47.1%)	6,400 (3.6%)	175,000
1988-93	55,900 (53.5%)	43,000 (41.2%)	5,500 (5.3%)	104,400
1994-96	109,900 (55.7%)	74,800 (37.9%)	12,500 (6.3%)	197,200
1997	186,800 (51.0%)	142,200 (38.8%)	37,200 (10.2%)	366,200
1998	239,600 (52.3%)	167,100 (36.5%)	51,700 (11.3%)	458,400
1999	200,700 (62.2%)	79,700 (24.7%)	42,200 (13.1%)	322,600
2000	256,500 (56.8%)	98,600 (21.9%)	95,700 (21.2%)	450,800
2001	277,100 (60.1%)	114,500 (24.8%)	69,500 (15.1%)	461,000
2002***	74,700 (34.4%)	129,500 (59.6%)	13,100 (6.0%)	217,300
2002****	--	--	--	392,621

* 3 zones since 1991 ** mean number and % of statewide harvest *** 2002 data are preliminary
**** 20002 estimate derived from Missouri Post-Season Harvest Survey

Hunters harvested 8,459 ducks and 3,060 mallards during the first 5 days of November, coinciding with the 30-31 October migration event and the Middle Zone opener. After a lull in mid-November, the next peak occurred during the last five days of November (4,711 ducks and 3,439 mallards) and the first 5 days of December (4,573 ducks and 3,576 mallards). Harvest declined during the remainder of the season, with occasional periods of increased harvest. The early season success in 2002-03 followed by a brief period of good hunting in late November and early December was substantially different than 2000-01 or 2001-02. (see also Appendix C). In 2000-01, the majority of harvest occurred before the onset of cold temperatures in early December. The mild conditions and delay in duck migrations in 2001-02 resulted in nearly a month's delay in the period of primary harvest. With a 60-day season in place, the periods of greatest harvest opportunity were bracketed in all three years.

Figure 3. Duck harvest per day by 5-day periods, 2002-03.

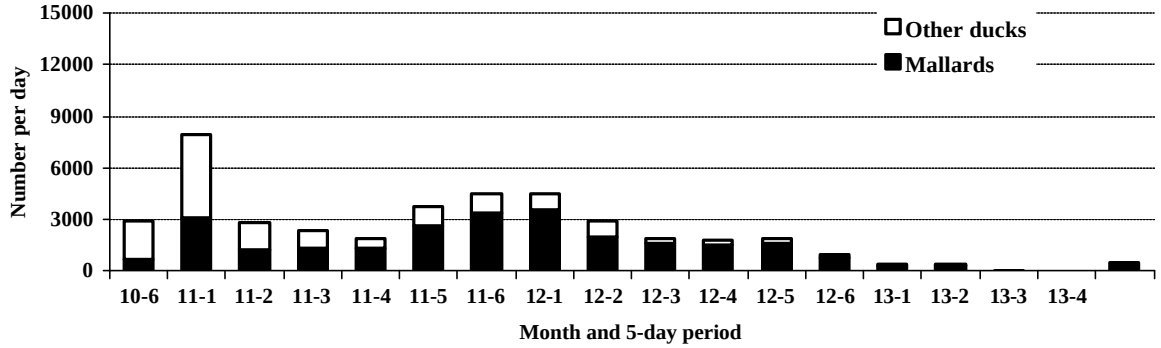
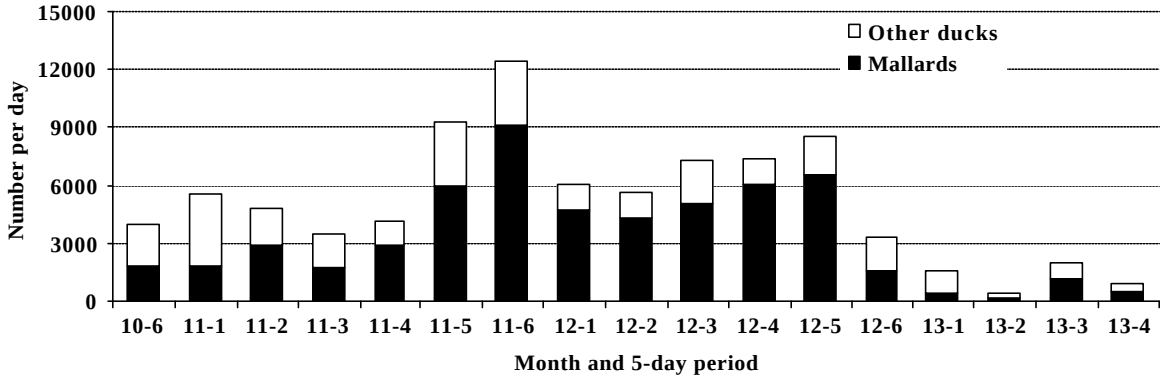


Figure 4. Duck harvest per day by 5-day periods, 2001-02.



Canada Goose Harvest:

A moderate to low Canada goose harvest in 2002-03 of 43,961 (25,165 preliminary USFWS estimate) was not surprising considering the delayed migrations and reports from hunters of poor goose hunting success during 2002-03. Canada goose harvest estimation in the Swan Lake Zone, which involves a ratio of public versus private harvested and processed geese, was not possible because few geese were harvested and processed from the Refuge (Swan Lake harvest of 117 was lower than in 2001-02 - 189). Zone-wide harvest in 2002-03 likely was lower than in 2000-01, when a harvest estimate (in-season monitoring) of <1,200 Canada geese for the Swan Lake Zone was the lowest on record, (2,214 in 1999, 2,085 in 1998, 2,977-3,616 in 1995-97, and 4,134-12,482 in 1982-94). Virtually all Zone harvest (82%) occurred in the 30-day segment after mid-December. Unlike 2001-02, early season harvest (prior to 2 December) was comprised of few small Canadas (16%, n=43 vs. 65%, n=69 in 2001-02).

Population size, the number of geese banded, and band recoveries are used to derive the number of geese harvested, by population, from statewide Canada goose harvest estimates. According to these derivations, the proportion of giant Canada geese in the Missouri Canada goose harvest has increased from 14% during 1970-1974 to 76% during 1999-2001. The above estimates include giants produced in other states and harvested in Missouri. Approximately 1/3 of the statewide

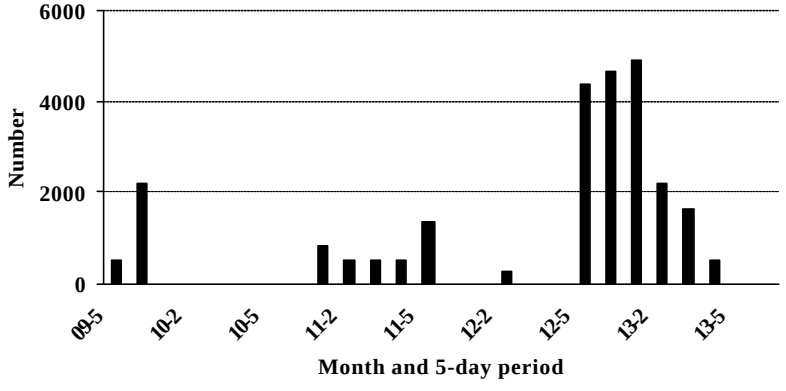
Canada goose harvest is estimated to be comprised of Canada geese produced in Missouri.

Table 3. Missouri Canada goose harvest among current (2001-02) goose season zones (USFWS Harvest Survey Data).

Years	Swan Lake Zone	Southeast Zone	North Zone	Middle Zone	South Zone	Statewide
1970-74	35,100 (81.0%)	1,900 (4.4%)	4,900 (11.3%)	900 (2.0%)	500 (1.2%)	43,300
1975-79	52,700 (78.7%)	6,500 (9.7%)	4,200 (6.3%)	2,800 (4.2%)	700 (1.0%)	66,900
1980-86	27,900 (71.4%)	2,400 (6.1%)	4,400 (11.3%)	4,100 (10.5%)	300 (0.8%)	39,100
1987-89	18,000 (58.8%)	1800 (5.9%)	3,000 (9.8%)	5,800 (19.0%)	2,000 (6.5%)	30,600
1990-92	11,100 (36.6%)	4,700 (15.5%)	7,600 (25.1%)	6,600 (21.8%)	300 (1.0%)	30,300
1993-96	6,900 (15.0%)	7,200 (15.8%)	22,000 (48.3%)	8,500 (18.5%)	1,100 (2.4%)	45,700
1998	300 (1.2%)	2,300 (9.3%)	13,800 (56.1%)	1,600 (6.5%)	6,600 (26.8%)	24,600
1999	700 (2.0%)	2,400 (6.8%)	21,200 (59.7%)	6,100 (17.2%)	5,100 (14.4%)	35,500
2000	1,700 (3.6%)	4,500 (9.6%)	26,800 (56.9%)	7,000 (14.9%)	7,100 (15.1%)	47,100
2001	3,100 (4.7%)	0	43,400 (64.3%)	16,000 (23.8%)	5,000 (7.3%)	68,600
2002**	3,300 (13.1%)	274 (1%)	14,500 (57.6%)	4,900 (19.5%)	2,200 (8.7%)	25,165
2002****	--	--	--	--	--	43,961

* mean number and % of statewide harvest ** 2002 data are preliminary **** 20002 estimate derived from Missouri Post-Season Harvest Survey

Figure 5. Canada goose harvest by 5-day periods in 2002-03 (FWS Harvest Survey).

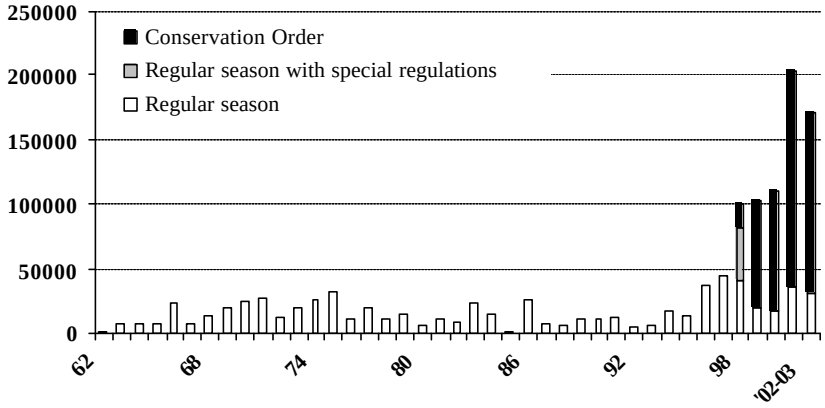


The pattern of Canada goose harvest was the result of season timing as well as migration patterns. Early season hunting opportunity for giant Canada geese and late migrations into the state accounted for a bimodal appearance to the harvest distribution. The early season (September portion) Canada goose harvest made up about 11% of the statewide harvest, which represented a similar proportion to 2000, but was lower than the 20% harvested in the early

season during 2001. About 15% of the Canada goose harvest occurred during November, and 37% was taken during each of the December and January portions of the season.

Light Goose Harvest:

Figure 6. Missouri light goose harvest: 1962-2002.



More liberal light goose hunting regulations after the mid-1990s and the availability of a Conservation Order beginning in February 1999 has resulted in a dramatic increase in the harvest of light geese in Missouri. The light goose harvest increased from an average of just over 11,000 during the early 1990s (regular hunting season) to a high of 203,200 total light geese harvested (regular season plus Conservation Order) during 2002-2003 (USFWS and MDC harvest estimates). Preliminary results of the spring 2003 regular season and Conservation Order indicate a total light goose harvest of 170,000, second only to the record high of last year. A total of 8,380 individuals hunted a total of 42,965 days for a harvest of over 5 birds per hunter.

White-Fronted Goose Harvest:

The harvest of white-fronted geese in the Mississippi Flyway nearly doubled from an average of about 65,000 during the early 1990s to over 146,000 during 1999. Over 90% of this harvest occurred in the states of Louisiana and Arkansas. In Missouri, the harvest of white-fronted geese is low and unpredictable; however, the harvest has increased in recent years, particularly in Southeast Missouri. White-fronted goose harvest generally averaged less than 500 birds prior to the 1990s but has increased to an average of just less than 2,000 during the last 5 years. The primary increase appears to have occurred during late season in the Missouri Bootheel.

2003 DUCK AND HABITAT STATUS

Each year, extensive surveys of waterfowl and wetlands are conducted in May and July in primary breeding areas of the U.S. and Canada. Coverage of 1.3 million mi^2 in the spring provides information about breeding populations and the condition of wetlands in the Prairies, northern Canada, and Alaska. July surveys in much of the same area are the source for information about the numbers of ducks produced and the condition of habitat for duck broods. Numbers of wetlands, termed "May ponds" and "July ponds," reflect habitat conditions for duck pairs in the spring and duck broods in the summer, respectively. Projections of the mallard fall flight are based on historic relationships among breeding duck numbers, habitat conditions, adult survival, and expected fall age ratios and duck numbers.